

## Seven Lichens New to Victoria

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### Abstract

Seven lichen taxa collected from cool-temperate rainforest and mixed cool-temperate rainforest/wet sclerophyll forest are recorded from Victoria for the first time: *Menegazzia myriotrema* (Müll. Arg.) P. James, *Parmelia testacea* Stirt., *Parmelinopsis neodamaziana* (Elix & J. Johnst.) Elix & Hale, *Pertusaria novaezelandiae* Szatala, *Placopsis parellina* f. *microphylla* I.M. Lamb, *Pseudocyphellaria ardesiaca* D.J. Galloway and *Trapeliopsis congregans* (Zahlbr.) Brako.

### Introduction

Seven lichen species collected from cool-temperate rainforest and mixed cool-temperate rainforest/wet sclerophyll forest are recorded from Victoria for the first time and short morphological and taxonomic notes are provided for each. Although all are listed in Filson's *Checklist of Australian Lichens and allied Fungi* (1996), none were reported from Victoria, nor were they documented from elsewhere in the State. Five of the taxa are also new to mainland Australia: *Menegazzia myriotrema*, *Parmelia testacea*, *Placopsis parellina* f. *microphylla*, *Pseudocyphellaria ardesiaca* and *Trapeliopsis congregans*, while *Parmelinopsis neodamaziana* is known from Queensland and New South Wales and *Pertusaria novaezelandiae* is known from Queensland, New South Wales and Tasmania. The collections were made as part of a larger lichen survey (Louwhoff 1995), covering approximately 50 square km of bushland in the Mt Donna Buang Scenic Reserve in south-eastern Victoria. This area is located within the Yarra Ranges National Park, Central Highlands. The vegetation in the Reserve is of interest as it is a mixture of cool-temperate rainforest and a variety of other, mainly higher altitude, vegetation types. For comparison, brief investigations of rainforest habitats (dominated by *Nothofagus cunninghamii*) near Marysville, Victoria, were also undertaken.

### Materials and Methods

Samples were collected with a portion of the substratum and transferred to the laboratory for examination. Herbarium specimens are lodged at the Deakin University Rusden Campus herbarium (DURC) and the National Herbarium of Victoria (MEL). Identifications are based upon relevant literature and representative herbarium

specimens; none of the types cited were examined. Chemical spot tests follow methods outlined by Elix (1994a). Nomenclature follows that of *Flora of Australia* (1992, 1994), Galloway (1985) and Kantvilas (1990).

## Results

**1. *Menegazzia myriotrema*** (Müll. Arg.) P. James, *Fl. Austral.* 54: 313 (1992). *Parmelia myriotrema* Müll. Arg., *Bull. Herb. Boissier* 4: 91 (1896). Type: 'without precise locality, Tas., *F.R.M. Wilson 1731* (holotype G)', *vide* P. James, *loc. cit.*

*Parmelia retipora* Stirt., *Trans. & Proc. New Zealand Inst.* 32: 80 (1900); *Menegazzia retipora* (Stirt.) Bitter, *Hedwigia* 40: 172 (1901). Type: 'without precise locality, Tas., *Mrs Heywood McEwen 36* (holotype BM)', *vide* P. James, *loc. cit.*

The genus *Menegazzia* is characterised by the presence of perforations in the upper cortex which are 0.2–2.5 mm in diameter, depending upon the species. *Menegazzia myriotrema* is distinguished from most other members of this genus by the small, delicate lobes of less than 1 mm in width. The ascospores (1–2 per ascus) are simple, broadly ellipsoidal, 45–50(–60; James and Galloway 1992) µm long and 25–35 µm in diameter, with a wall 3.5 µm thick. *Menegazzia myriotrema* was previously thought to be endemic to Tasmania (James and Galloway 1992; Kantvilas 1994). The medulla reacts K<sup>+</sup> orange (James and Galloway 1992), but this reaction was not significant in the Victorian specimens. At the study site, *Menegazzia myriotrema* occurred on fallen twigs of *Nothofagus cunninghamii* on the forest floor of cool-temperate rainforest. In Tasmania, the species is common and widespread on canopy twigs in rainforest, but is rare outside the rainforest habitat (James and Galloway, 1992). This is also true for all Victorian specimens observed in the field. *Menegazzia myriotrema* has been treated as a synonym of *M. platytrema* (Kantvilas 1989; McCarthy 1991) but subsequently has been recognised as a separate species (James and Galloway 1992; Kantvilas 1994). It is distinguished from the latter by the thinner lobes with numerous perforations and the generally delicate appearance of the thallus.

### *Specimens Examined*

VICTORIA: The Beeches (loop), Marysville, on small twigs, *Louwhoff 338*, 14.ii.1994 (DURC, MEL), *Louwhoff 353*, 27.iv.1995 (MEL). TASMANIA: Arthur-Pieman Protected Area, 32 km NNE of Savage River, along the pipeline road, on *Cassinia* along margin of mixed rainforest, *J.A. Elix 40109 and G. Kantvilas*, 8.xii.1993 (CANB).

**2. *Parmelia testacea*** Stirt., *Scott. Naturalist (Perth)* 4: 203 (1878). Type: 'Tinakora Hill, Wellington, New Zealand, Nov. 1872, *J. Buchanan 42* (holotype BM; isotypes WELT)', *vide* M.E. Hale, *Smithsonian Contr. Bot.* 66: 49 (1987).

*Parmelia tenuirima* var. *erimis* Nyl., *Flora* 68: 610 (1885); *Parmelia erimis* (Nyl.) Hillmann, *Hedwigia* 78: 259 (1939). Type: 'Tinakora Hill, Wellington, New Zealand, 1867, *C. Knight 55* (lectotype H-NYL)', *vide* M.E. Hale, *loc. cit.*

*Parmelia rudior* Nyl., *Lich. Nov. Zel.* 24 (1888). Type: 'Tinakora Hill, Wellington, New Zealand, 1867, *C. Knight 57* (lectotype H-NYL)', *vide* M.E. Hale, *loc. cit.*

*Parmelia signifera* f. *pallidior* Zahlbr., *Akad. Wiss. Wien Math.-Naturwiss. Kl., Denkschr.* 104: 107 (1941). Type: 'Dunedin, South Island, New Zealand, *J.S. Thomson ZA 249* (lectotype W)', *vide* M.E. Hale, *loc. cit.*

*Parmelia testacea* is morphologically similar to the much more common *P. tenuirima* Hook.f. & Taylor, but is distinguished by the smaller and narrower lobes, the scabrid thalline exciple and the squarrosely branched rhizines which often protrude beyond the

lobe margins. In addition, *P. testacea* has predominantly marginal pseudocyphellae, whereas *P. tenuirima* has laminal pseudocyphellae (Elix 1994a). The ascospores are ellipsoidal and 13-18  $\mu\text{m}$  long and 8.5-11  $\mu\text{m}$  in diameter (Galloway 1985). Apothecia were not observed in the Victorian specimens. However, pycnidia were numerous, scattered, red brown, immersed and most easily visible when the thallus was hydrated. Many lichens from canopy branches and subalpine scrub at the timberline display a morphology with narrow, branching lobes and copious rhizines as an adaptation to high-light and subalpine environments (Galloway 1985). Specimens collected in Victoria from habitats with plentiful light, also displayed these characteristics. When *P. testacea* grows in the shade (rarely), the lobes are shorter, more rounded and imbricate, and the rhizines are fewer.

In Australia, *P. testacea* was previously reported only for Tasmania (Elix 1994b; Filson 1996). At the study site in Victoria, the specimen was collected on *Nothofagus cunninghamii* in mixed forest dominated by *Eucalyptus pauciflora*, at an altitude of 1200 m. In New Zealand, the species is widespread in lowland to subalpine habitats (Galloway 1985). In New Zealand and Tasmania, *P. testacea* frequently occurs on *Nothofagus* species, particularly on trunks along roadsides or riverbanks (Hale 1987).

#### *Specimens Examined*

VICTORIA: near summit of Mt Donna Buang, c. 20 km N of Warburton, on *Nothofagus cunninghamii*, *Louwhoff 148*, 12.iv.1993 (DURC, MEL). NEW ZEALAND: Wye Valley, Central Otago, South Island, on rock in *Nothofagus* forest, *Polly*, 30.xii.1991 (WELT).

### 3. *Parmelinopsis neodamaziana* (Elix & J. Johnst.) Elix & M.E. Hale, *Mycotaxon* 29: 243 (1987).

*Parmelina neodamaziana* Elix & J. Johnst., *Brunonia* 9: 155 (1987). Type: '8 km NE of Nerringa, New South Wales, 31 Oct. 1979, *J.A. Elix 5093* (holotype CBG, isotype MEL)', *vide* Elix, *loc. cit.* (but isotype could not be located at MEL).

*Parmelia damaziana sensu* G.N. Stevens & R.W. Rogers, *Proc. Roy. Soc. Queensland* 90: 39 (1979); J.A. Elix, V.K. Jayanthi & C.C. Leznoff, *Austral. J. Chem.* 34: 1757-1761 (1981); J.A. Elix & H. Streimann, *J. Hattori Bot. Lab.* 51: 84 (1982); *non* (Zahlbr.) Elix & M.E. Hale (1987).

*Parmelinopsis neodamaziana* bears a superficial resemblance to *P. afrorevoluta* (Taylor) Elix & Hale which also has curled and twisted lobes. However, the former can be distinguished by the smaller ascospores (9-12  $\mu\text{m}$  long and 6-8  $\mu\text{m}$  in diameter cf. 16-20  $\mu\text{m}$  long and 10-14  $\mu\text{m}$  in diameter), in lacking pustular soralia and by the presence of pycnidia. *Parmelinopsis neodamaziana* is endemic to Australia, where it occurs in New South Wales, Tasmania and Queensland (Elix 1994c). At the study site in Victoria, *P. neodamaziana* occurs in mixed forest dominated by *Eucalyptus pauciflora* and *Acacia obliquinervia* at an altitude of 1200 m.

#### *Specimens Examined*

VICTORIA: near summit of Mt Donna Buang, c. 20 km N of Warburton, Mt Donna Buang Rd, on *Acacia obliquinervia*, *Louwhoff 201*, 16.vi.1994 (DURC, MEL). QUEENSLAND: Bunya Range, Mt Mowbullian, *H.J. Lam 7654*, 24.ix.1954 (J.A. Elix Private Collection).

### 4. *Pertusaria novaezelandiae* Szatala, *Borbàsia* 1: 60 (1939). Type: 'Nova Zelandia: North Island: ad lac Waikare-Moana, supra cort. Podocarpi, 1932, *J. Jablonszky* (holotype BP)', *vide* D.J. Galloway, *Fl. of N.Z. Lichens* 377 (1985).

*Pertusaria novaezelandiae* has very characteristic spores that are large, ellipsoidal, colourless, 1-2 per ascus, with a spore wall frequently ruptured, thereby releasing a

dense substance (a condition described as guttulate; Kantvilas 1990). The spores are 100–130 µm long and 37–50 µm in diameter, and with a wall of up to 5 µm thick. The erupting verrucae which contain the apothecia are prominent and wart-like on the pale green to white thallus and are K+ deep purple/scarlet.

In Victoria, *P. novaehollandiae* commonly occurs on twigs and branches of *Nothofagus cunninghamii*. It has been reported as common and widespread in rainforest canopies in Tasmania, where it occurs on numerous tree species (Kantvilas 1990). In New South Wales, *P. novaehollandiae* is common in *Nothofagus moorei* forests (Kantvilas 1990) and the species is also well known in New Zealand (Galloway 1985; Kantvilas 1990). Additional, previously undocumented specimens from Victoria were found in MEL (see below).

### *Specimens Examined*

VICTORIA: Cement Ck, Acheron Way, on branch collected from forest floor, *Louwhoff 116*, 2.iv.1994 (DURC, MEL); Blue Range, Mount Margaret Saddle, in *Nothofagus* forest, *Filson 17184*, 5.ix.1981 (MEL); Cumberland Falls, c. 19 km E of Marysville, growing in canopy of fallen *Nothofagus*, *Filson 17247*, 17.x.1981 (MEL); East Gippsland, Alfred National Park, summit of Mt Drummer ('1370 ft'), on dead *Eucalyptus* trunks, *Willis*, 17.ii.1965 (MEL); Cathedral Range, 5 km north-east of Buxton, north Jawbone, on rock, *Filson 16631*, 16.ii.1979 (MEL); Otway Range, Turtons Track, near Quarry Glen, on ?*A. melanoxylon* bark, *Willis*, 15.viii.1963 (MEL). NEW ZEALAND: Arthurs Pass National Park, Mt Cassidy, common on bark of 'Mountain Nothofagus', *Siseman*, 8.ii.1966 (MEL).

**5. *Placopsis parellina* f. *microphylla*** I.M. Lamb, *Lilloa* 13: 149 (1947). *Type*: 'Sine loco (prob. Wellington), *Charles Knight* (WELT), *vide* D.J. Galloway, *Fl. of N.Z. Lichens* 405 (1985).

*Placopsis parellina* is a very polymorphic species and a number of subspecific taxa have been described (Galloway 1985). *Placopsis parellina* f. *microphylla* differs from the typical, crustose form of *P. parellina* in having a squamulose or microphylline thallus (Galloway 1985). The species has uniseriate ascospores, eight per ascus, often tilted at 45° within the ascus, ellipsoidal, 17–21 µm long and 7–10 µm in diameter, with an undulating wall. In Australia, *P. parellina* f. *microphylla* previously was known only from Tasmania (Kantvilas 1994, *Filson* 1996). At the study site in Victoria, it occurs on rocks along roadsides in association with *Stereocaulon ramulosum* (Sw.) Räscher and *Baeomyces heteromorphus* Nyl. ex Bab. & Mitt. and, less commonly, on rocks on the forest floor. The species is widespread in New Zealand (Galloway 1985).

### *Specimens Examined*

VICTORIA: Mt Donna Buang, c. 20 km N of Warburton, on way to summit on Mt Donna Buang Rd, on sandstone along roadside verges, *Louwhoff 105*, iii.1992, (DURC, MEL); Mt Donna Buang, c. 20 km N of Warburton, at 10 Mile Turntable carpark, on roadside cutting, on rock, *Louwhoff 341*, 20.x.1994 (MEL). TASMANIA: Frodshams Gap, near Maydena, on quartzite, *Bratt 83616*, 1.xii.1963 (MEL); Cradle Mountain-Lake St Clair National Park, track between Pine Valley and the Acropolis, *Filson 6934*, 7.i.1965 (MEL).

**6. *Pseudocyphellaria ardesiaca*** D.J. Galloway, *Lichenologist* 15: 141 (1983). *Type*: 'New Zealand, Canterbury, Boyle River, near Lewis Pass, on bark of *Leptospermum* on terrace overlooking Boyle Lodge, *D.J. Galloway*, 9.i.1979 (holotype CHR 343237, isotype BM)', *vide* D.J. Galloway *et al.*, *Lichenologist* 15: 141 (1983).

*Pseudocyphellaria ardesiaca* is recognised by its purple/grey upper surface and deep, golden yellow medulla and marginal soralia. Although it is similar in appearance to *P. coeruleascens*, it differs in the presence of soralia rather than phyllidia. Apothecia have not been reported for either species. Although *P. ardesiaca* contains a blue-green

photobiont, it is not tolerant of low light intensities (Galloway 1985), unlike many other species of *Pseudocyphellaria* containing such photobionts. In Australia, *P. ardesiaca* has previously been reported only from Tasmania (Galloway *et al.* 1983, Filson 1996). At the study site in Victoria it occurs in cool-temperate rainforest, in well-lit habitats such as along roadsides. The species also has been reported for New Zealand (Galloway 1985, 1988) where it occurs in cool, moist, humid conditions in montane to subalpine habitats.

### *Specimens Examined*

VICTORIA: Myrtle Gully Reserve, on Mt Donna Buang Rd, on *E. regnans* along roadside, *Louwhoff* 003, 12.i.1994 (DURC, MEL). NEW ZEALAND: Nelson, Wairau Valley, north branch Lees Ck, mountain *Nothofagus* forest on valley floor, growing with *Nephroma australe*, *Glenny* 89-026, 3.i.1989 (WELT).

### 7. *Trapeliopsis congregans* (Zahlbr.) Brako, *New Zealand J. Bot.* 21: 196 (1983).

*Phyllopsora congregans* (Zahlbr.) D.J. Galloway, *New Zealand J. Bot.* 21: 196 (1983). *Lecidea congregans* Zahlbr., *Akad., Wiss. Wien Math.-Naturwiss. Kl., Denkschr.* 104: 305 (1941). *Type*: New Zealand, Otago, Mt Cargill, on rotten logs, c. 400 m, *J.S. Thomson* A96, May 1935 (lectotype W3424)', *vide* D.J. Galloway *loc. cit.*

*Trapeliopsis congregans* is a squamulose lichen, recognised by its characteristic red, rusty to brown apothecia, which grow in large, irregular clusters, up to 4 mm wide and become paler (orange) towards the margins. The ascospores (8 per ascus) are ellipsoidal, with narrowly rounded apices, and c. 10 µm long and 3.5–4 µm in diameter. At the study site in Victoria, *T. congregans* is common and occurs mostly on decaying stumps in wet sclerophyll and cool-temperate rainforest, in damp/shaded habitats, often growing together with mosses. *Trapeliopsis congregans* is also known from Tasmania (Kantvilas *et al.* 1985) and New Zealand (Galloway 1985).

### *Specimens Examined*

VICTORIA: Ben Cairn Reserve, Mt Donna Buang Rd, near car park, on *E. regnans* (base), *Louwhoff* 132, ii.1994 (DURC, MEL). TASMANIA: Mt Wedge, alpine boulder field at 1140 m, on soil, *Kantvilas*, 17.x.1981 (BM); Mt Field National Park, Lake Dobson, soil, *Eucalyptus coccifera*-alpine woodland at 1030 m, *Kantvilas and James*, 13.viii.1991 (BM).

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